

is described a reactor comprising isolated reaction sites and an optical system operably linked to the chemical reactor for the synthesis of multimers. Figure 3 discloses a reagent manifold operably linked to the chemical reactor. Further support may be found at pages 9, lines 19-22, page 10, lines 1-6 and in Figure 1 of the present application, which describe an optical system that selectively or differentially irradiates one or more reaction sites and which also describe a controller for the optical system, including a controller that is a computer. Deblocked and activated initiating moieties, including photogenerated acids, find support in the present application at pages 9, lines 9-11, page 12, lines 1-2 and page 21, lines 18-20. Multimers of DNA, RNA, peptides or carbohydrates and methods for synthesizing same on a substrate find support in the present application at page 20, lines 10-21 and page 21, lines 1-20. Support for modulating chemical conditions at an array of isolated reaction sites on a substrate may be found in the present application at page 5, lines 9-13.

This Amendment incorporates claims from Gao, et al., as published in International Application Serial No. WO 99/41007 (hereinafter "the 41007 Application.") The 41007 Application claims priority to an application filed in the United States PCT Receiving Office and given the application serial number PCT/US99/02945, filed February 10, 1999, which claims priority to United States Provisional Patent Application Serial No. 60/074,368, filed February 11, 1998.

Applicant presents this Preliminary Amendment in conjunction with a Request by Applicant for Interference Pursuant to 37 C.F.R. § 1.604 wherein Applicant respectfully requests that an interference be declared between this Divisional Application and the United States counterpart to Co-Pending Patent Application PCT/US99/02945. The information required by 37 C.F.R. § 1.604(a) is set forth below under sections that should facilitate consideration by the Examiner.

I. Identification of the Patent Application that Includes Subject Matter which Interferes with the Present Application

The patent application that claims subject matter which interferes with subject matter claimed herein is believed to be the United States counterpart patent application to published

PCT International Publication Number WO 99/41007 ("the 41007 Application") entitled METHOD AND APPARATUS FOR CHEMICAL AND BIOCHEMICAL REACTIONS USING PHOTO-GENERATED REAGENTS. The 41007 Application was published on August 19, 1999, which purports on its face to be based on United States Provisional Patent Application Serial No. 60/074,368, filed February 11, 1998. The University of Houston and the University of Michigan are the assignees named on the face of the published application. The United States is designated on the face of the publication. Applicant believes that a counterpart United States Patent Application was filed concurrently with the filing of the published application or that a United States Patent Application will mature from the PCT Application, which United States Application is the patent application that interferes with the present Application.

II. Presentation of a Proposed Count

Attached Appendix A sets forth the proposed count. The proposed phantom count is modified from claim 1 of the 41007 Application, the modification consisting of broadened language in the preamble of said claim 1, after consideration of the subject matter claimed by the respective parties.

The proposed count is at least as broad as claim 62 in the present application as hereby amended. A phantom count is proposed because different language is used by the respective parties to describe the same invention.

III. Identification of the Claim of WO 99/41007 that Corresponds to the Count

Claims 1-18 of the WO 99/41007 application, which Applicant believes corresponds to the claims of the United States counterpart, correspond to the proposed count. Appendix C is a comparison of claim 1 of the WO 99/41007 application and the proposed count.

IV. Claims of the Present Application that Correspond to the Proposed Count

Claims 62-79 of the present divisional application as hereby amended are believed to correspond to the proposed count. To assist the Examiner in this regard, Applicant includes

Appendix B, C and D. Appendix B is a chart that provides an element-by-element recitation of the newly added claims of this application and an indication of the passages in the original application filed where, at the very least, the claims find support. Appendix D is a chart that provides a side-by-side comparison of allowed claim 15 of the '526 application with the proposed count.

V. Conclusion

Applicant respectfully requests that an interference be declared employing the proposed count set forth in Appendix A with claims 62-79 of this divisional application as hereby amended and claims 1-18 of the United States counterpart of International Application Number WO 99/41007, and designated as corresponding to the proposed count. Such action is respectfully requested.

Should any fees under 37 C.F.R. §§ 1.16 to 1.18 be required for any reason relating to the enclosed materials, or should an overpayment be included herein, the Commissioner is authorized to deduct or credit said fees from or to Gardere Wynne Sewell LLP Deposit Account No. 07-0153. The Examiner is invited to telephone the undersigned at the telephone number listed below if he or she has any questions or suggested amendments to the claims.

Dated this 4 day of April, 2001.

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APPENDIX A

PROPOSED PHANTOM COUNT

- 1 1. A device for carrying out a chemical reaction, the device comprising:
 - 2 a chemical reactor comprising one or more isolated reaction sites; and
 - 3 an optical system operably linked to the chemical reactor, which optical system
 - 4 selectively irradiates one or more reaction sites.



APPENDIX B

APPLICATION OF CLAIM 61 OF THIS DIVISIONAL APPLICATION AS AMENDED TO THE DISCLOSURE OF THIS APPLICATION

Claim 62 of this divisional application	Disclosure in this application
A device for synthesizing a multimer or a plurality of multimers comprising:	More particularly, the present invention can be an apparatus for catalyzing a reaction on a substrate ... Pg. 5, 7-8. The micromirror system 40 is designed as a simple device on which to do synthesis (oligo or combinatorial chemistry) using, e.g., optical deprotection. Pg. 12, 1-2.
a chemical reactor comprising one or more isolated reaction sites; and;	The micromirror imager system can be used to create individual spots , 20 microns or smaller in size, on a substrate 24 such as glass, with up to 2 million spots per substrate using the present invention. Pg. 11, 10-12. Figures 6 and 7 are drawings that represent the results from using the present invention to conduct a spatially controlled oligonucleotide synthesis using light projected with the micromirror image system 40. Pg. 15, 21-23.
an optical system operably linked to the chemical reactor, which optical system selectively irradiates one or more reaction sites.	A computer is connected to, and controls, the micromirror and a substrate holder, such as a reaction chamber, that is placed in the path of light redirected by the micromirror , wherein light that is redirected by the micromirror catalyzes a chemical reaction proximate the substrate. Pg. 5, ll. 7-12.

APPENDIX CCOMPARISON OF CLAIM 1 OF THE WO 99/41007 APPLICATION AND
CLAIM 62 OF THE PRESENT APPLICATION AS AMENDED
WITH THE PROPOSED COUNT

Claim 1 WO 99/47001 and Present Claim 62	PROPOSED COUNT
A device for synthesizing a multimer or a plurality of multimers comprising:	A device for carrying out a chemical reaction, the device comprising:
a chemical reactor comprising one or more isolated reaction sites; and	a chemical reactor comprising one or more isolated reaction sites; and
an optical system operably linked to the chemical reactor, which optical system selectively irradiates one or more reaction sites.	an optical system operably linked to the chemical reactor, which optical system selectively irradiates one or more reaction sites.

APPENDIX DCOMPARISON OF ALLOWED CLAIM 15 OF THE '526 APPLICATION WITH THE PROPOSED COUNT

Claim 15 of 09/326,526	PROPOSED COUNT
Apparatus for use in synthesis of arrays of DNA probes, polypeptides, and the like, comprising:	A device for carrying out a chemical reaction, the device comprising:
<p>(a) a substrate with an active surface on which the arrays may be formed;</p> <p>(b) an image former providing a high precision, two-dimensional light image projected onto the substrate active surface, comprising:</p> <p>(1) a light source providing a light beam;</p> <p>(2) a micromirror device receiving the light beam from the source and formed of an array of electronically addressable micromirrors, each of which can be selectively tilted between one of at least two separate positions, wherein in one of the positions of each micromirror the light from the source incident upon the micromirror is deflected away from an optical axis and in a second of the at least two positions of the micromirror the light is reflected along the optical axis; and</p> <p>(3) projection optics receiving the light reflected from the micromirrors along the optical axis and imaging the pattern of the micromirrors onto the active surface of the substrate.</p>	<p>a chemical reactor comprising one or more isolated reaction sites; and</p> <p>an optical system operably linked to the chemical reactor, which optical system selectively irradiates one or more reaction sites.</p>